

## Fighting Combat Fatigue

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The U.S. Army Aeromedical Research Laboratory recently conducted research on the usefulness of stimulants, specifically Dexedrine and Modafinil, to counteract fatigue in aviation crews.

USAARL assessed aircrews' flight performance and mood evaluations throughout a 40-hour period without sleep. These sleep loss studies were conducted at USAARL with either single-pilot or two-pilot crews. Volunteer pilots in the single-pilot studies were given twice as much stimulants as pilots who volunteered for the two-pilot crew research. The higher dose is the one currently recommended for use when stimulants are necessary in sustained operation scenarios.

In general, the lower-dose groups reported less tension and irritability. Pilots taking the lower dose of Modafinil tended to show superior results on all flight maneuvers when compared to those pilots given the higher dose. The lower-dose group also reported more energy than the higher-dose group at comparable levels of sleep loss. Pilots given the higher dose of Dexedrine were only better on the hover flight maneuver than the low-dose group, but they reported being more tense and more irritable. Since it is unlikely the lower doses of the stimulants were behaviorally superior to the higher doses, the most plausible reason for these lack of differences produced by more drug were the psychosocial effects of having another aviator in the next seat. The second crewmember performed the duties of co-pilot, colleague, alertness monitor, etc., and almost surely affected flight performance and mood.

As aircrews typically operate as teams in the real world, more representative studies examining fatigue countermeasures may be needed. These findings show that stimulant medications can assist the warfighter in maintaining acceptable levels of judgment and decision making, as well as crew coordination, when combat requirements dictate long periods of sleep deprivation. They also suggest that smaller doses may be just as effective in two-man crews as higher doses are for single pilots. Clearly, future research will also be needed to examine the resilience and vulnerability of team behavior as a fatigue countermeasure.